

REMARKS

Claims 1-16 were examined. Claims 1, 9 and 14 are amended. Claims 1-16 remain in the Application.

The Patent Office rejects claims 1-16 under 35 U.S.C. § 103(a). Reconsideration of the pending claims is respectfully requested in view of the above amendments and the following remarks.

A. 35 U.S.C. § 103(a): Rejection of Claims 1-5, 9-12, 14 & 15

The Patent Office rejects claims 1-5, 9-12, 14 and 15 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6, 506,681 of Grigg et al (Grigg) in combination with U.S. Patent Application 2002/0031899 of Manor (Manor). Grigg is cited for disclosing a method of forming a chemical soluble coating (30) on a plurality of contacts (18) on a surface of a circuit substrate (17) and removing portions of the coating by sawing along a scribe street to form individual die. The Patent Office notes that the removing and sawing is done simultaneously in that the sawing removes material in its path. Manor is cited for a scribing method utilizing a laser.

Independent claim 1 is not obvious over the cited references, because the cited references fail to teach forming a chemically soluble coating on a plurality of exposed contacts on a surface of a circuit substrate, scribing, and after scribing, removing a portion of the coating by a dissolution process to expose the plurality of contacts. As noted above, Grigg teaches removing and sawing in a scribe street region, and not removing material from an area on contacts. There is also no motivation from the cited references to form a coating on a plurality of exposed contacts and then remove the coating. Grigg discloses conductive bumps 18 over contacts and molding compound 30 that surrounds, but does not fully cover, the top area portions of each of solder bumps 18. See col. 10, lines 36-39.

Claims 2-5 depend from claim 1 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 1, claims 2-5 are not obvious over the cited references.

Independent claim 9 is not obvious over the cited references, because the cited references

fail to teach or provide any motivation for a method comprising forming a coating comprising a chemically soluble material on a plurality of exposed contacts on a surface of a circuit structure, scribing the surface of the substrate along scribe streets, and, after scribing, removing the coating from an area on the contacts by a dissolution process. As noted above, the references do not describe or provide any motivation for forming a coating on exposed contacts and then removing the coating from an area on the contacts.

Claims 10-12 depend from claim 9 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 9, claims 10-12 are not obvious over the cited references.

Independent claim 14 is not obvious over the cited references, because the references fail to describe a method comprising coating a surface of a circuit substrate comprising a plurality of exposed contacts with a chemically soluble material, scribing the surface of the substrate along scribe areas, removing the coating by dissolution process to expose the plurality of contacts, and sawing the substrate in the scribe areas. As noted above with respect to claim 1, the references fail to teach coating exposed contacts and removing the coating by a dissolution process to expose the plurality of contacts.

Claim 15 depends from claim 14 and therefore contains all the limitations of that claim. For at least the reason stated with respect to claim 14, claim 15 is not obvious over the cited references.

Applicants respectfully request that the Patent Office withdraw the rejection to claims 1-5, 9-12, 14 and 15 under 35 U.S.C. § 103(a) as obvious over Grigg in view of Manor.

B. 35 U.S.C. § 103(a): Rejection of Claims 1-7, 9-12, 14 & 15

The Patent Office rejects claims 1-7, 9-12, 14 and 15 under 35 U.S.C. § 103(a) as obvious over U.S. Patent Application 2003/0013233 of Shibata et al (Shibata) in view of Manor. Shibata is cited for disclosing a method comprising forming a chemically soluble coating (3) on a plurality of exposed contacts (2) on a surface of a circuit substrate (1) and removing portions of the coating by sawing along scribe streets to form individual die, and removing coating (3) to expose a

plurality of contacts (Figure 1e). The chemical coating noted by the Patent Office is resin layer 3 of, for example, polyimide or epoxy. See paragraph [0019]. Once deposited, resin layer 3 is cured. See paragraph [0029]. Shibata removes resin 3 is removed by etching. See paragraph [0034].

Independent claim 1 is not obvious over the cited references, because the cited references fail to teach or provide any motivation for removing a portion of a chemically soluble coating by a dissolution process to expose a plurality of contacts on a surface of a circuit substrate. Shibata describes a cured polyimide or epoxy that is not described as chemically soluble and describes an etch technique for removing resin layer 3. This would likely require a chamber environment and associated processing steps.

Claims 2-7 depend from claim 1 and therefore contain all the limitations of that claim. For at least the reasons stated with respect to claim 1, claims 2-7 are not obvious over the cited references.

Independent claim 9 is not obvious over the cited references, because the cited references fail to teach or provide any motivation for a method including forming a circuit structure comprising a plurality of exposed contacts on a surface, forming a coating comprising a chemically soluble material on the exposed contacts, describing the surface of the substrate along scribe streets, and after scribing, removing the coating from an area on the contacts by a dissolution process. As noted above with respect to claim 1, Shibata describes resin layer 130 that is deposited on the structure and removed by an etch process.

Claims 10-12 depend from claim 9 and therefore contain all the limitations of that claim. For at least the reason stated with respect to claim 9, claims 10-12 are not obvious over the cited references.

Independent claim 14 is not obvious over the cited references, because the references fail to teach or provide any motivation or a method comprising coating a surface of a circuit substrate with a chemically soluble material, scribing the surface of the substrate, removing the coating by a dissolution process to expose a plurality of contacts, and sawing the substrate in scribe areas. As noted above with respect to claim 1, Shibata discloses resin layer 3 that is removed by an etch

process.

Applicants respectfully request that the Patent Office withdraw the rejection to claims 1-7, 9-12, 14 and 15 under 35 U.S.C. § 103(a) as obvious over Shibata in view of Manor.

C. 35 U.S.C. § 103(a): Rejection of Claims 8, 13 & 16

The Patent Office rejects claims 8, 13, and 16 under 35 U.S.C. § 103(a) as obvious over Shibata and Manor in combination with JP2000630747 of Fuji (Fuji). Shibata and Manor are cited for their teachings as noted above with respect to independent claims 1, 9 and 14. Fuji is cited for disclosing a resin flux.

Applicants believe there is no motivation to combine the teachings of Fuji with the teachings of Shibata. Shibata is directed at reinforcing a wafer with a resin layer so that the wafer may be thinned. See, e.g., paragraph [0013]. It is not clear that the composition of Fuji may be substituted for resin layer 3 of Shibata.

For the above-stated reasons, Applicants respectfully request that the Patent Office withdraw the rejection to claims 8, 13 and 16 under 35 U.S.C. § 103(a) as obvious over Shibata and Manor in view of Fuji.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date. If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees. If a telephone interview would expedite the prosecution of this Application, the Examiner is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

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By: William T. Babbitt
William Thomas Babbitt; Reg. No. 39,591

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
Telephone (310) 207-3800
Facsimile (310) 820-5988

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